

Application No. 10/081,699  
Amendment dated December 19, 2005  
Reply to Office Action of September 20, 2005

## **REMARKS**

### **Status Of Application**

Claims 1-23 are pending in the application; the status of the claims is as follows:

Claims 3 and 10-21 are withdrawn from consideration.

Claim 22 is objected to because of informalities.

Claims 1, 2, 4-9, and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Application Publication No. 2000-225772 A to Matsuda et al ("Matsuda") in view of U.S. Patent No. 6,524,759 B1 to Sugimoto et al ("Sugimoto '759").

Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuda in view of Japanese Application Publication No. 2001-228453 A to Sugimoto et al ("Sugimoto '453").

### **Claim Amendments**

Claims 1, 22 and 23 have been amended to more particularly point out and distinctly claim the invention. These changes do not introduce any new matter.

### **Objection**

Claim 22 has been objected to because the phrase "abruptly heating" is deemed unclear. This phrase has been amended to read "rapidly heating." This rapid heating is shown in Figure 4 of the specification. In light of this amendment, Applicants respectfully request withdrawal of the objection.

**35 U.S.C. § 103(a) Rejections**

The rejection of claims 1, 2, 4-9, and 23 under 35 U.S.C. § 103(a), as being unpatentable over Matsuda in view of Sugimoto '759, is respectfully traversed based on the following.

Matsuda describes a process where a liquid crystal layer is heated to an isotropic phase and then cooled to fix a cholesteric reflective color in the liquid crystal layer. At least a part of the material is then heated again to crystallize the liquid crystal layer to form a white color display state (paragraph [0008]). A white display state indicates random crystallization of the liquid crystal layer and is inconsistent with a cholesteric reflective state.

Sugimoto references a published Japanese patent application that discusses a recording layer capable of recording a color (col. 1, lines 44-52). After the color is set, the recording layer may be rendered transparent "by heating the recording layer at an isotropic phase transition temperature or more" (col. 1, lines 52-54). This step erases the recorded image (col. 1, lines 54-59).

In contrast to the cited references, claim 1 includes:

a first heating process for heating the liquid crystal in a crystal phase to a first temperature that allows the liquid crystal to exhibit a cholesteric liquid crystal phase or an isotropic phase to form an image; and  
a second heating process for heating at least a part of an area of the recording medium to a second temperature, wherein:  
in the second heating process, the liquid crystal is heated to at most a second temperature that is lower than the first temperature and said second temperature causes the at least part of an area where the image has been formed by the first heating process to discolor or develop color without external pressure, and the second temperature causes the at least part of an area to exhibit a cholesteric fixed phase after cooling.

Matsuda does not show or suggest a second heating process for causing a cholesteric fixed phase. Sugimoto specifically states that the second heating process is "at

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an isotropic phase transition temperature or more” (col. 1, lines 52-54). Thus, neither reference shows or suggests a second heating process where “the second temperature causes the at least part of an area to exhibit a cholesteric fixed phase after cooling.” In addition, neither reference shows or suggest a second heating process where “the liquid crystal is heated to at most a second temperature that is lower than the first temperature.” These limitations allow the invention to provide a high resolution image that is easily controlled as explained in paragraph [0009] of the specification. To support a *prima facie* case for obviousness, the cited references must show or suggest every limitation of the claim. MPEP §2143.03. Therefore, the references cited do not support a *prima facie* case for obviousness of claim 1. Claims 2 and 4-8 are dependent upon claim 1, and thus include every limitation of claim 1. Therefore, claims 2 and 4-8 are also not anticipated by the cited reference. Claim 9 has been canceled.

Also in contrast to the cited references, claim 23 includes:

- a first heating process for heating the liquid crystal in a crystal phase to a first temperature that allows the liquid crystal to exhibit a cholesteric liquid crystal phase or an isotropic phase to form an image;
- a second heating process for heating at least a part of an area of the recording medium to a second temperature, wherein
  - in the second heating process, the liquid crystal is heated to at most a second temperature that is lower than the first temperature and said second temperature causes the at least part of an area where the image has been formed by the first heating process to discolor or develop color without external pressure; and
  - a cooling process for cooling the at least part of the area to fix the image after the second heating process thereby causing the at least part of an area subject to the second heating process to exhibit a cholesteric fixed phase having a selective reflection property.

As noted above, neither of the cited references shows or suggests a second heating process “causing the at least part of an area subject to the second heating process to exhibit a cholesteric fixed phase” or where “the liquid crystal is heated to at most a second temperature that is lower than the first temperature.” Therefore, the cited references do

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not show or suggest every limitation of the claim and do not support a *prima facie* case for obviousness of claim 23.

Accordingly, it is respectfully requested that the rejection of claims 1, 2, 4-8, and 23 under 35 U.S.C. § 103(a) as being unpatentable over Matsuda in view of Sugimoto '759, be reconsidered and withdrawn.

The rejection of claim 22 under 35 U.S.C. § 103(a), as being unpatentable over Matsuda in view of Sugimoto '453, is respectfully traversed based on the following.

Sugimoto '453 shows an optical recording medium including a thermo-optical layer for absorbing light and generating heat therefrom (abstract).

In contrast to the cited references, claim 22 includes:

a first heating process for heating the liquid crystal in a crystal phase to a first temperature that allows the liquid crystal to exhibit a cholesteric liquid crystal phase or an isotropic phase to form an image; and  
a second heating process for rapidly heating at least a part of an area of the recording medium to a second temperature causing the liquid crystal to transit to a cholesteric liquid phase before the liquid crystal transitions to a crystal phase, wherein  
in the second heating process, the liquid crystal is heated to at most a second temperature that is lower than the first temperature and said second temperature allows the area where the image has been formed by the first heating process to discolor or develop color without external pressure.

Neither cited reference shows or suggests a relationship between the temperature of the first heating process with the temperature of the second heating process. Therefore, the cited references do not show or suggest every limitation of the claim and do not support a *prima facie* case for obviousness of claim 22.

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Accordingly, it is respectfully requested that the rejection of claim 22 under 35 U.S.C. § 103(a) as being unpatentable over Matsuda in view of Sugimoto '453, be reconsidered and withdrawn.

### **CONCLUSION**

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment does not increase the number of independent claims, does not increase the total number of claims, and does not present any multiple dependency claims. Accordingly, no fee based on the number or type of claims is currently due. However, if a fee, other than the issue fee, is due, please charge this fee to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

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Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

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